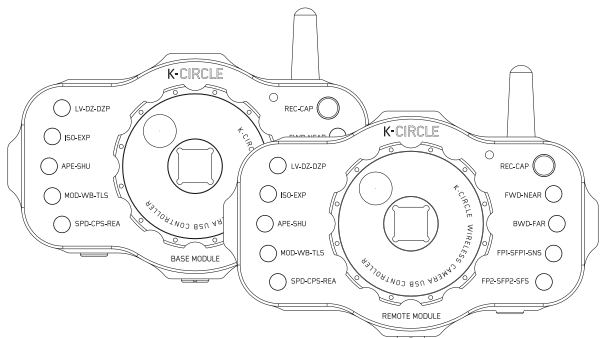


INSTRUCTION MANUAL



K-CIRCLE
WIRELESS CAMERA USB CONTROLLER

**BASE MODULE
REMOTE MODULE
SYSTEM KIT**

PRIME CIRCLE

Measures:	Weight: approx. 300 grams
Dimensions:	W:142mm H:85mm D:64mm
Battery:	Li-Ion 1020 mAh 7.4v Dedicated battery charger Input: 100-240V AC / Output: 7,4V DC/0,8A (Lemo 2Pin)
Radio:	Over the air data rate of 250Kbps with a max of 500Kbps 868 (EU) and 915 (USA) MHz ISM/SRD bands Up to 10dBm (10 mW) power output Low current consumption (RX: 24mA; TX: 36mA @ -10dBm output power) Antenna 1/4-wave, weather resistant, omni-directional pattern

READ BEFORE TO OPERATE FOR THE FIRST TIME

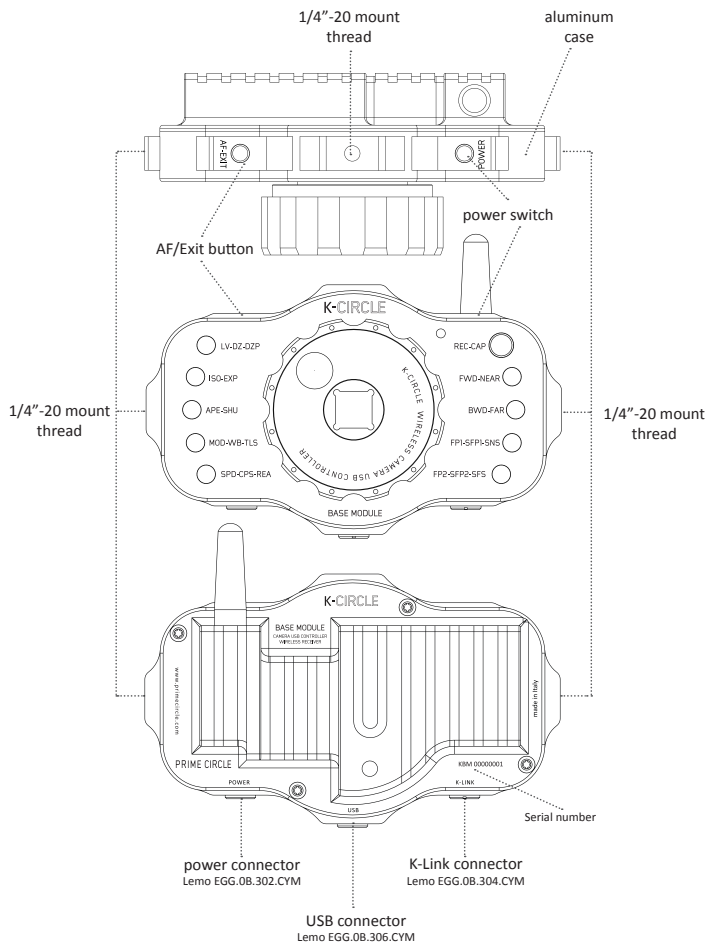
WARNING

- Do not operate in wet environments
- When not in use for long periods of time, recharge battery
- Do not attempt to open the unit for inspection
- Clean the unit wiping with a damp cloth
- Always transport in a rigid bodied case
- Do not dispose unit in household waste
- Operating temperature: min -7°C to max 50°C



This product conforms with Restriction of Hazardous Substance Directive.
This product meets EU consumer safety, health and environmental requirements.

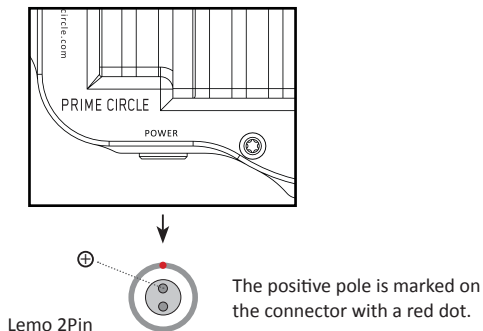
BASE MODULE UNIT DESCRIPTION



GETTING STARTED - BASE MODULE

RECHARGE THE UNIT

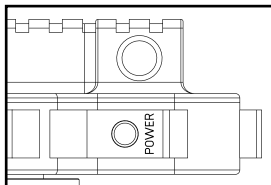
The unit is powered with an internal li-ion battery. To recharge it, plug the charging connector to “power” socket on the back of the unit.



POWER ON/OFF

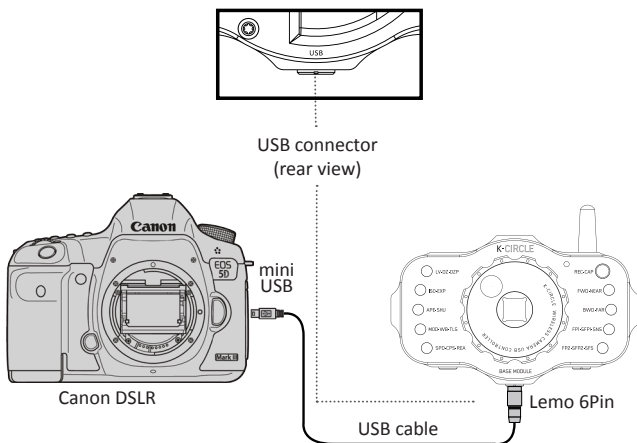
To turn on the unit, press the upper right button.

To turn off hold it till the main led switch down.



BASE MODULE - CONNECT A CANON DSLR

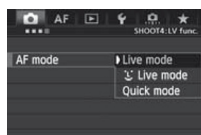
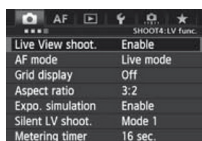
Once you took care of powering the unit, connect the USB cable you find in the package. One end goes to the main unit, the other end goes to the DSLR.



BASE MODULE - DSLR SETTINGS

To check how the parameters used by the K-Circle Base Module interact with Canon EOS camera settings, we recommend you follow what is written in the Canon EOS User Manual about settings for video recording.

For example, for models such as the 5D MkIII, which have the “Live View/Movie func.set.” menu option, follow the instructions in the camera’s User Manual in the paragraph “shooting movies”, setting the parameter in “Stills + Movie” and “Movie Display”.



We recommend you set Autofocus to “Live Mode”

SPECIAL FUNCTIONS - BASE MODULE

KNOB REVERSE

To reverse the action of the knob, while nothing is attached to the unit and it's powered on, hold button 1 for 5s, then power cycle the unit.

INPUT DIAGNOSTICS

To enter input diagnostics, while nothing is attached to the unit and it's powered on, hold button 5 for 5s. The led will turn off, and for each button you press it will turn on, indicating the button is working. Rotating the knob will result in two different colors. To exit from the procedure, switch off the unit.

PHOTO/VIDEO PRIORITY

This function set which action to do when the REC (button 6) is pressed. If in PHOTO priority it captures a photo, if in VIDEO priority, start a video. To activate it, while connected to the DSLR, hold button 6 for 2 orange blinks. To return to the previous setting, repeat the operation.

WIRELESS ID CHANGE

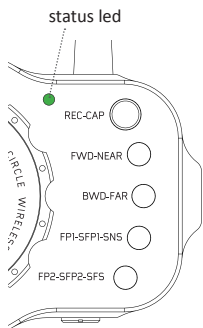
BASE MODULE and REMOTE MODULE are factory setted to channel 1. Channel 2 and 3 are available for special applications: please refer to the K-Circle technical manual.

ENABLE/DISABLE WIRELESS RADIO

This function is used to disable the radio wireless system when using only the BASE MODULE to prevent excessive battery consumption: please refer to the K-Circle technical manual.

STATUS LED - BASE MODULE

Once the main unit is turned on, the software automatically check for a valid camera, if one is connected the main led turn orange for two seconds, then become steady green. The camera is then associated.



short



long



3 fast red blinks and 1 slow green blink: no camera detected

long



long blink for 2 sec.: camera associated



steady when normal operation



steady while movie recording

short



short blink every 5 sec.: recharge battery



continuous red blinks while the unit is not connected to the DSLR means it's needed to replace batteries



short green/off blink while pulling focus or pressing BWD, FWD

COMPATIBILITY

List of compatible DSLRs (at present Canon brand only) :

- **EOS 1D** Mark IV
- **EOS 1DX / 1DC**
- **EOS 5D** Mark II
- **EOS 5D** Mark III
- **EOS 6D**
- **EOS 7D**
- **EOS 60D**
- **EOS 500D/Rebel T1/Kiss X3**
- **EOS 550D/Rebel T2/Kiss X4**
- **EOS 600D/Rebel T3/Kiss X5**
- **EOS 650D/Rebel T4/Kiss X6**

OPERATIONS

There are 11 function buttons available, every button have more than a function. Each function is marked near the button.

To enter the first function, press once the button, to enter the second function hold the button till the led blinks red once, then release.

To enter in the third function hold the button till the led blinks red two times (at least two sec.).

When entered a function, to increase or decrease values turn the knob clockwise or counterclockwise. It's also possible to use **FWD** and **BWD** buttons to increase/decrease values. If nothing is changed on the unit, 5 seconds later the controller exit automatically from the function.

NOTE: in some models the MOD button switch may not operate, due to some Canon's firmware limitations. You have to operate the mode selection by the camera's selector knob.

NOTE: The motor assisted focusing, turning the knob, works **ONLY** in LiveView. This is a limit of the Canon internal software.

IMPORTANT NOTICES

- Keep turning the focusing knob after the lens has reached the end of focus range may cause excessive wear of autofocus motor.
- Do not attempt to service/open the unit by yourself, there are sensitive internal electrical circuits that can be damaged.
- Use ONLY the provided 8.4v li-ion battery charger
- Do not move focusing manually on the lens while operating the K-Circle, this may cause saved focus points to become inaccurate.
- The system can have delays because is transmitting comands thru the USB port, it's not a realtime system.

Function selection works as follows:

- **SINGLE PRESS:**

do the base function, singular press to activate.

- **SHORT HOLD:**

do the second function - to activate hold down the button and release it when the red led shortly blinks once.

- **LONG HOLD:**

do the third function - to activate hold down the button and release it when the red led shortly blinks twice.

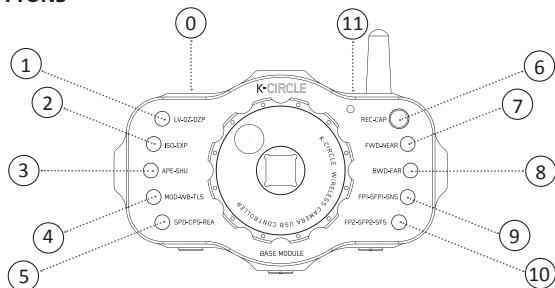
- **EXIT:**

to exit from a function, you have to press again the same button you used to enter, or press the AF/Exit button at the top left of the controller.

In order to prevent the user does not recognize in which menu was entered, the unit automatically exit a function while is in standby for at least 8 sec.

BASE MODULE - FUNCTIONS

FRONT BUTTONS



(0) AF•EXIT

autofocus • exit

PRESS: exit from the current function, if inside Digital Zoom Position change axis.
HOLD: perform AutoFocus / Metering while holding button. Release to stop.

(1) LV•DZ•DZP

liveview • digital zoom • digital zoom position

PRESS: digital zoom - on every press cycle thru 5x,10x,1x (normal)
HOLD: go in LiveView, hold again to deactivate. If you are not in LiveView, a unique press activate it. The camera focusing moves only in LiveView, and also all movie recording features (Canon specific features).
LONG HOLD: zoom area movement, rotating the knob you can move on the X axis. Push **EXIT** button to switch to Y axis movement, rotate the knob to go to position. Pushing once **EXIT** cycles you thru X and Y axis. Once you found the correct position, just press the button again to exit the function.

(2) ISO•EXP

iso • exposure compensation

PRESS: iso change, rotate knob to change values, press again to exit
HOLD: exposure change, rotate knob to change values, press to exit

(3) APE•SHU

aperture • shutter

PRESS: aperture change, rotate knob to change values, press to exit

HOLD: shutter change, rotate knob to change values, press again to exit

(4) MOD•WB•TLS

mode • white balance • timelapse start

PRESS: mode change, rotate knob to change param, press to exit

HOLD: white balance change, rotate knob to change, press to exit

LONG HOLD: start timelapse (programming is possible only with external software)

(5) SPD•CPS•REA

speed cut • command rate • reactivity

PRESS: switch focusing speed limits, blinks on settings

1 red blink = speed 1

2 red blinks = speed 1 + speed 2

3 red blinks = speed 2

4 red blinks = speed 2 + speed 3

3 green blinks = speed 1+2+3 (standard speed)

HOLD: USB command send rate, blinks on values change. When you enter the function all led colors are off. Turn the knob, for every green blink you add a command per second (cps). Every 10 cps added the led blinks red. To exit from the function press the button again. The led become steady green again. Every time you restart the procedure, the command count will start from 8 cps.

The more you go faster, less you have precision in focus movement and also the responsiveness may vary on the lens type or brand you are using.
Best value with most of lenses is around 11cps. The minimum is 8 blinks = 8 cps, maximum 50 blinks = 50 cps

LONG HOLD: movie presets change (reactivity), cycle thru:

- 1 red blink = SLOW priority to speeds 1,2
- 2 red blinks = MEDIUM preset balanced thru speed 1,2,3
- 3 red blinks = NORMAL preset priority to speeds 2,3
- 4 red blinks = FAST preset (the same of above but amplified)
- 5 red blinks = FASTER preset (the same of above but amplified)
- 6 red blinks = FASTEST preset (the same of above but amplified)

(6) REC•CAP *record movie • capture photo*

PRESS: movie start/stop (if pressed and not in movie mode, force movie mode - if not in liveview, capture photo)

HOLD: capture photo

(7) FWD *forward*

PRESS: rack focus to near, if inside function, step+

HOLD: continuous operation

It is still possible using the knob in combination with this button. While inside functions, a single press change parameters (step+).

(8) BWD *backward*

PRESS: rack focus to far, if inside function, step-

HOLD: continuous operation

It is still possible using the knob in combination with this button. While inside functions, a single press change parameters (step-) combined with the normal use of other parameters.

(9) **FP1•SFP1•SNS**

focus point1 • set focus point1 • set near stop

PRESS: focus point 1 recall (works only while in SPEED 1 or SPEED 2)

HOLD: focus point 1 set (works only while in SPEED 1 or SPEED 2)

LONG HOLD: set near limit stop of the lens (like mechanical limit)

(10) **FP2•SFP2•SFS**

focus point2 • set focus point2 • set far stop

PRESS: focus point 2 recall (works only in while SPEED 1 or SPEED 2)

HOLD: focus point 2 set (works only while in SPEED 1 or SPEED 2)

LONG HOLD: set far limit stop of the lens (like mechanical limit)

(11) **POWER**

power on/off

PRESS: power on the unit

HOLD: power off the unit

Each lens model may require different focus command send rates for optimal performance. The focus step size in use will also have an impact: larger steps will take longer for the lens to move the focus. Is it possible also to choose one of the six presets (acceleration presets) holding the BUTTON 5 and cycling thru different focus responsiveness. This settings can be combined with the normal use of other parameters.

Important: The focus points are saved on a command count basis and the controller knows the count of each saved position based on the number of commands it takes to reach them. If the focus command send rate is set too fast, commands will be dropped, and saved focus points will not be accurate. Additionally, if you do not use the homing and FAR focus settings, plus you continue to turn the focus knob after the focus reaches either end of the focus range (lens mechanical stops), your saved focus points will no longer work as expected.

The ability to save and return to stored focus points depends on selecting a command send rate that is slower than the minimum time required for the lens to move between two focus steps. If the command send rate is too quick, successive focus commands will be sent too fast and lost. This will alter the accuracy of the focus stops, and will result in erratic motion of the focus while using the knob. In this case the rate must be slowed down.

TROUBLESHOOTING - BASE MODULE

Controller does not operate

- Make sure the unit is powered correctly, if red led is blinking recharge the unit
- Make sure it is turned on correctly

Controller does not switch to green steady led when connected

- Make sure the camera attached is compatible
- Control cables
- Control that the camera did not enter auto standby/poweroff mode
- If the camera was for some reason locked, do the procedure of unplug battery and replug it almost 5 seconds later.

Camera become not responsive

- Turn off the camera, remove battery, wait 5 seconds - turn on again.
- If the green led is not steady, power cycle also the K-Circle unit.

Focus points are not accurate

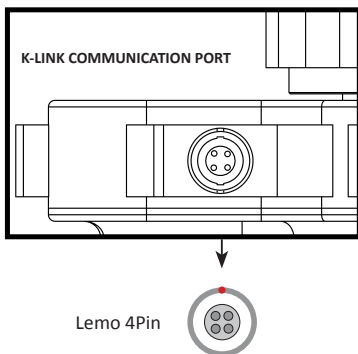
- Make sure the CPS (commands per second) do not exceed 11 or lower. Changing CPS, step size and focus position affects the saved point. Redo the focus point setup each time you change CPS or step size.
- Some lenses suffer from mechanical problem called backlash that result in a focus shift. Usually are cheap lenses.

K-LINK COMMUNICATION PORT

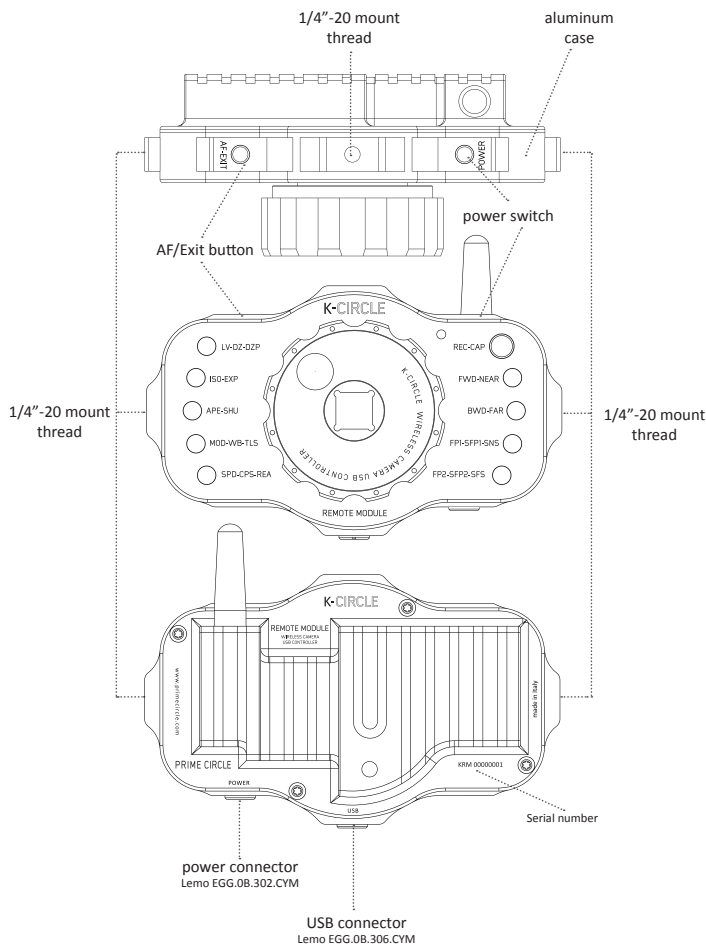
TO CONTROL ACCESSORIES

The base module is equipped with a special communication port, called K-Link. This port is suitable to remotely command external accessories, and to connect future expansions.

Is also used to connect and control different types of devices.



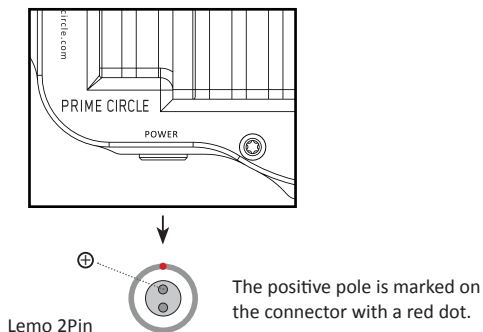
REMOTE MODULE UNIT DESCRIPTION



GETTING STARTED - REMOTE MODULE

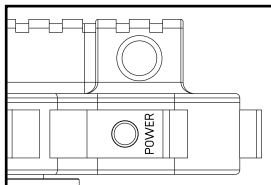
RECHARGE THE UNIT

The unit is powered with an internal li-ion battery. To recharge it, plug the charging connector where there is written “power” on the back of the unit.



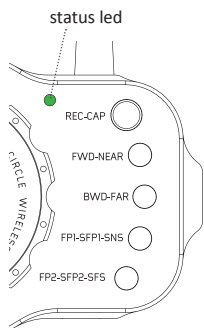
POWER ON/OFF

To turn on the unit, press the upper right button. To turn off hold it till the main Led switch down.



STATUS LED - REMOTE MODULE

Once the remote module is turned on, the software automatically check for a valid Base Module on the same Radio ID, if one is found the main led start to reflect the same state of the Base Module. If no wireless base module is found, the unit blink red.



short	long	
		3 fast red blinks and 1 slow green blink: no camera detected
		no wireless base module found
		steady when normal operation
		steady while movie recording
short		short blink every 5 sec.: recharge battery
		short green/off blink while pulling focus or pressing BWD, FWD

WIRELESS CONNECTING TO BASE MODULE

When base module is in range, the Remote Module's red led stops blinking and become of the same color combination of the base module. If the signal is lost, the base unit keeps operating while the remote needs to get in range again, and automatically link again to the base.

FUNCTIONS

Refer to the base unit's function descriptions. All functions are replicated from the base module. If the wireless module loses the link while changing a function, 5 seconds later it exits and returns to normal operation when in range again.

SPECIAL FUNCTIONS - REMOTE MODULE

WIRELESS ID CHANGE

BASE MODULE and REMOTE MODULE are factory set to channel 1. Channel 2 and 3 are available for special applications: please refer to the K-Circle technical manual.

REMOTE HOLD

This function is used to disable all functions on the base unit, and operate only from the remote unit. All buttons and the know will be disabled.

To activate it, while the unit is turned on and associated to a base module, hold button 7 for over than three seconds. The led will blink alternate red/orange and the hold function will be activated. Repeat the operation (or power cycle both the base and the remote modules) to turn off the remote hold.

TROUBLESHOOTING - REMOTE MODULE

Controller does not operate

- Make sure the unit is powered correctly, recharge battery
- Make sure it is turned on correctly

Controller led keeps blinking red

- Make sure the base module is in range
- Power cycle the remote module and get in range

Controller lost the radio link

- Get in range again and the controller will link again
- If interference with other systems, change wireless radio ID
- If still no connection, power cycle both units (base and remote)

QUICK FUNCTIONS TABLE

BUTTON FUNCTION	PRESS (press and release)	HOLD (hold with 1 blink)	LONG HOLD (hold with 2 blinks)
AF•EXIT	exit from current function	perform Autofocus	N/A
LV•DZ•DZP	if in liveview, digital zoom 1x,5x,10x	digital zoom position	N/A
ISO•EXP	change ISO	change Exposition compen- sation	N/A
APE•SHU	change Aperture	change Shutter time	N/A
MOD•WB•TLS	change Mode (*available only in some models)	change white balance	start timelapse (external programmer needed)
SPD•CPS•REA	focusing speed cut	change commands per second	change reactivity pattern
REC•CAP	start movie record (** if in video mode)	capture photo	
FWD	step forward	N/A	N/A
BWD	step backward	N/A	N/A
FP1•SFP1•SNS	recall Focus Point 1	Set Focus Point 1	Set Near limit stop
FP2•SFP2•SFS	recall Focus Point 2	Set Focus Point 2	Set Far limit stop

* = Mode change is available only in some camera models

**= When LiveView is not turned on, and/or the camera is not in video mode - if REC is pressed, the camera capture a photo

SOME IMPORTANT NOTES ABOUT K-CIRCLE

Regarding the use of K-Circle with Canon EOS cameras:

- It is necessary to enable the Live View in the camera menu (if disabled).
- The focusing feature of the K-Circle works only while Live View enabled.
- If Live View is not enabled and the camera is in M (manual) mode, you can change all parameters but non drive focusing.
- Live View enabled is necessary to drive focusing.
- Once connected the camera and turned on both (K-Circle and camera) you should see the led become green steady.

This means the K-Circle is associated to the camera.

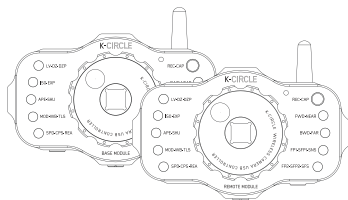
- To turn on the Live View and start operations, press the upper left button (LV-DZ-DZP).

Then you will be able to drive the focusing.

This operation should be done every time you need to drive the focus.

And you have just connect the K-Circle.

- You can still operate commands by the camera, and turn live view from there.



K-CIRCLE
WIRELESS CAMERA USB CONTROLLER

www.lockcircle.com

PRIME CIRCLE